[0026] FIG. **1** presents a block diagram showing the applied architecture for the User Agent (UA) of the End-to-End Negotiation Protocol (E2ENP) according to the underlying invention,

[0027] FIG. **2** shows a first implementation example of the applied architecture for the User Agent (UA) of the End-to-End Negotiation Protocol (E2ENP) according to one embodiment of the underlying invention using a Java-based SIP stack (JSIP), an SDPng Parser and Factory,

[0028] FIG. **3** shows a second implementation example of the applied architecture for the User Agent (UA) of the End-to-End Negotiation Protocol (E2ENP) according to one embodiment of the underlying invention using Sun's Java Remote Method Invocation (RMI),

[0029] FIG. **4** shows a third implementation example of the applied architecture for the User Agent (UA) of the End-to-End Negotiation Protocol (E2ENP) according to one embodiment of the underlying invention using the socked-based User Datagram Protocol (UDP) or Transmission Control Protocol (TCP),

[0030] FIG. **5** exhibits a UML class diagram showing the org::mind::e2enp package,

[0031] FIG. $\mathbf{5}^{bis}$ shows the E2ENP Management API between the E2ENP UA Factory and the Management Entities,

[0032] FIG. **6** presents a document showing examples for the syntax of the E2ENP Universal Resource Identifier (URI), thereby using the Augmented Backus-Naur Form (ABNF),

[0033] FIG. **7** outlines a first message sequence chart (MSC) showing the pre-negotiation procedure enabled by the User Agent (UA) of the proposed End-to-End Negotiation Protocol (E2ENP),

[0034] FIG. **8** outlines a second message sequence chart (MSC) showing the session establishment with a QoS negotiation and resource reservation coordination enabled by the User Agent (UA) of the proposed End-to-End Negotiation Protocol (E2ENP),

[0035] FIG. **9** exhibits a UML class diagram showing the org::mind::e2enp::Cache sub-package,

[0036] FIG. **10** presents a diagram showing the top-level view of an Extensible Markup Language (XML) description used for the End-to-End Negotiation Protocol (E2ENP),

[0037] FIG. **11** presents a diagram showing the XML substitution groups used for the End-to-End Negotiation Protocol (E2ENP),

[0038] FIG. **12** presents a diagram showing the XML purpose element used for the End-to-End Negotiation Protocol (E2ENP),

[0039] FIG. **13** presents a diagram showing the XML qosdef element used for the End-to-End Negotiation Protocol (E2ENP),

[0040] FIG. **14** presents a diagram showing the XML qoscfg element used for the End-to-End Negotiation Protocol (E2ENP),

[0041] FIG. **15** exhibits a UML message sequence chart (MSC) showing the interaction between the E2ENP User Agent (E2ENP UA) according to the underlying invention and the applied Parser and Cache,

[0042] FIG. **17** exhibits a UML class diagram showing the general structure of a Document Object Model (DOM) tree,

[0043] FIG. **18** exhibits a UML class diagram showing a structural overview of the Parser implementation using a visitor design pattern,

[0044] FIG. **19** presents a UML message sequence chart (MSC) showing the interaction between the E2ENP User Agent (E2ENP UA) according to the underlying invention and the applied Factory and Cache,

[0045] FIG. **20** presents a UML class diagram showing a structural overview of the Factory implementation,

[0046] FIG. **21** exhibits a UML class diagram showing the org::mind::sip::sipApi package,

[0047] FIG. **22** exhibits a UML class diagram showing the org::mind::sip::sipApi::userAgent package,

[0048] FIG. **23** exhibits a UML class diagram showing the org::mind::sip::sipApi::registrar package,

[0049] FIG. **24** exhibits a UML class diagram showing the org::mind::sip::sipApi::management package,

[0050] FIG. **25** exhibits a UML class diagram showing the org::mind::sip::sipApi::time package,

[0051] FIG. **26** exhibits a UML message sequence chart (MSC) showing the configuration of the Service Provider and the binding of the Service User with said Service Provider,

[0052] FIG. **27** exhibits a UML message sequence chart (MSC) showing the connection establishment between the User Agents of a client and a server,

[0053] FIG. **28** exhibits a UML message sequence chart (MSC) showing the OPTIONS method used for the End-to-End Negotiation Protocol (E2ENP),

[0054] FIG. **29** exhibits a UML message sequence chart (MSC) showing the connection release between the User Agents of a client and a server,

[0055] FIG. **30** shows a first state transition diagram for a nested Finite State Machine (FSM) showing the mutex-related procedures executed in the root state,

[0056] FIG. **31** shows a second state transition diagram for a nested Finite State Machine (FSM) showing the mutex-related procedures executed in the NegOfferer sub-state,

[0057] FIG. **32** shows a third state transition diagram for a nested Finite State Machine (FSM) showing the mutex-related procedures executed in the NegAnswerer sub-state,

[0058] FIG. **33** shows a fourth state transition diagram for a nested Finite State Machine (FSM) showing the mutex-related procedures executed in the ReNegOfferer sub-state,

[0059] FIG. **34** shows a fifth state transition diagram for a nested Finite State Machine (FSM) showing the mutex-related procedures executed in the ReNegAnswerer sub-state,

[0060] FIG. **35** shows a sixth state transition diagram for the "Resv-Mtx" Finite State Machine (FSM) for allowing multiple requests to seize the mutex in a coordinated manner, based on their priority,

[0061] FIG. **36** shows a seventh state transition diagram for a nested Finite State Machine (FSM) showing the mutex-related procedures executed in the WaitForCoord-Done sub-state,

[0062] FIG. **37** exhibits a UML message sequence chart (MSC) showing the pre-negotiation procedure needed for the correlation of the Application Programming Interface (API) of the E2ENP User Agent (E2ENP UA) and the generic Application Programming Interface (API) of the SIP User Agent (SIP UA), thereby using the above-mentioned Finite State Machine (FSM) of the E2ENP User Agent (E2ENP UA),

[0063] FIG. **38** exhibits a UML message sequence chart (MSC) showing the session establishment with the QoS negotiation procedure and the resource reservation coordi-